

描述 / Descriptions

SOT-23 塑封封装精密可调基准电源。

Precision adjustable shunt regulator in a SOT-23 Plastic Package.

特征 / Features

精确参考电压 1.240V, 允许电压误差为 0.5%、1%, 阴极电流能力为 100uA ~ 100mA, 快速导通, 可调节输出电压为 $V_O = V_{ref} \sim 20V$, 阴极工作电流低(典型值:55μA), 动态输出阻抗低(典型值:0.05Ω), 符合 AEC-Q100 标准高可靠性要求, 无卤产品。

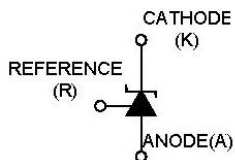
Precise reference voltage to 1.240V, guaranteed 0.5%, 1% ,reference voltage Tolerance, sink current capability, 100uA ~ 100mA, quick turn-on, adjustable output voltage, $V_O = V_{ref} \sim 20V$, low operational cathode current, 55μA typical, 0.05Ω typical output impedance, Qualified to AEC-Q100 Standards for High Reliability, HF Product.

用途 / Applications

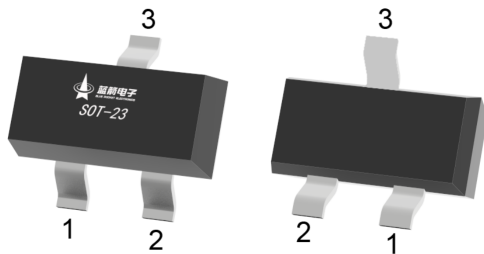
用于线性调整器, 可调节电源和开关电源, 满足汽车应用的严格要求。

Linear regulators, adjustable power supply, switching power supply, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : R

PIN 2 : K

PIN 3 : A

印章代码 / Marking

Marking	Q432
---------	------

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Cathode voltage	V _{KA}	20	V
Continuous cathode current range	I _K	-100~+100	mA
Reference current range	I _{REF}	10	mA
Power Dissipation	P _D	370	mW
Ambient temperature range	T _{amb}	-40~125	°C
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-65~150	°C

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Reference voltage	V _{REF}	V _{KA} =V _{REF} I _K =10mA(A=0.5%)	1.234	1.240	1.246	V
		V _{KA} =V _{REF} I _K =10mA(B=1%)	1.228	1.240	1.252	V
Reference voltage drift over temp. range	ΔV _{REF} /T	V _{KA} =V _{REF} I _K =10mA T _A =-40~85°C		3	10	mV
Voltage ratio (open loop gain)	ΔV _{REF} /ΔV _{KA}	I _K =10mA ΔV _{KA} =V _{REF} to 16V		-0.5	-1.5	mV/V
Reference current	I _{REF}	I _K =10mA R ₁ =10KΩ R ₂ =open T _A =-40~85°C		0.1	0.4	μA
		I _K =10mA R ₁ =10K R ₂ =open		0.15	0.4	μA
Min. cathode current	I _{K(min)}	V _{KA} =V _{REF}		55	80	uA
Off-state cathode current	I _{K(off)}	V _{KA} =18V V _{REF} =0V		0.04	0.1	μA
		V _{KA} =6V V _{REF} =0V		0.01	0.05	μA
Dynamic impedance	Z _{KA}	V _{KA} =V _{REF} I _K =1mA to 100mA, f≤1.0KHz		0.05	0.15	Ω

电参数曲线图 / Electrical Characteristic Curve

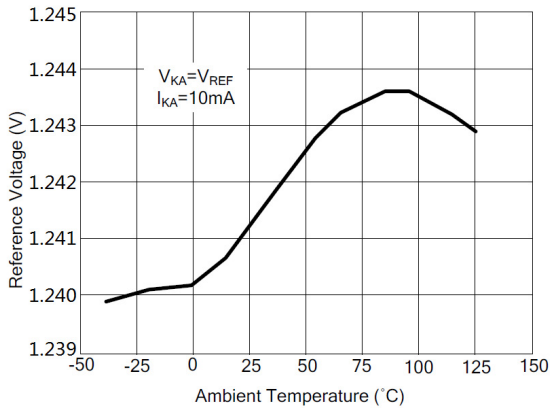


Figure 1. Reference Voltage VS. Ambient Temperature

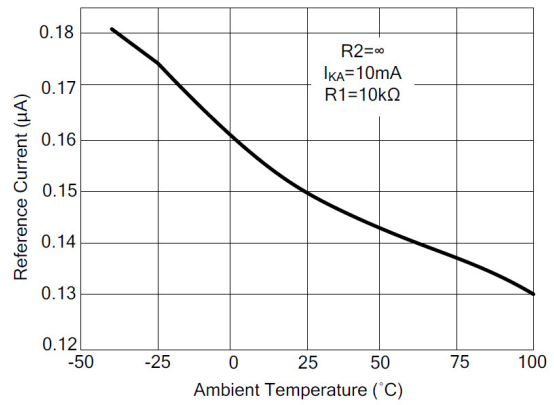


Figure 2 . Reference Current VS. Ambient Temperature

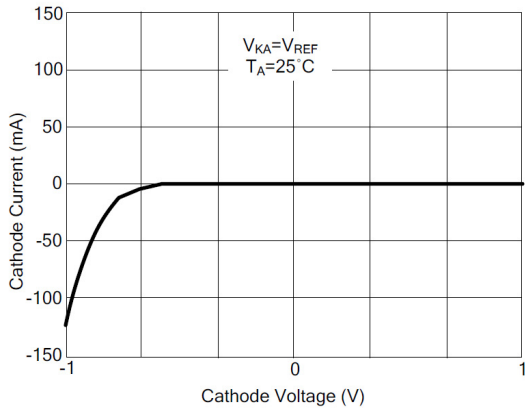


Figure 3 . Cathode Current VS. Cathode Voltage

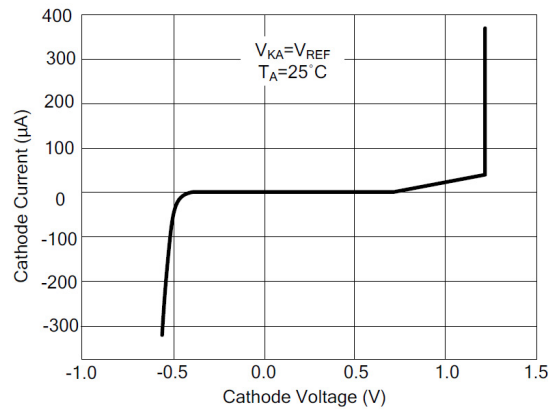
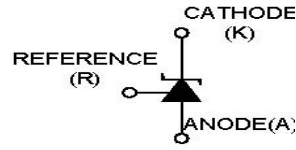
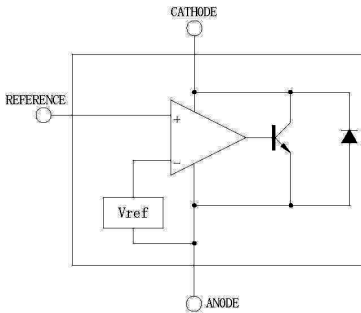


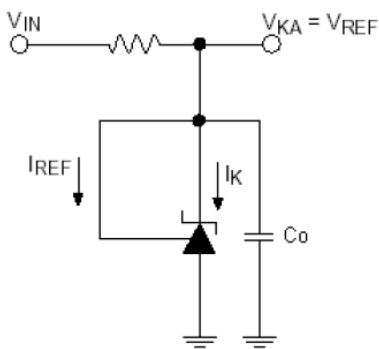
Figure 4 . Current VS. cathode Voltage

测试电路图&典型应用图 Test circuits&Typical Application

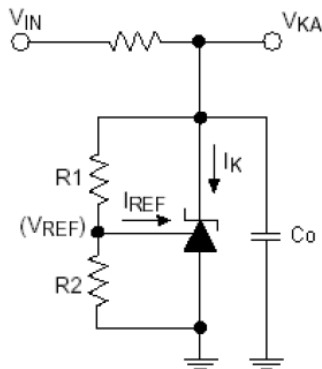
BLOCK DIAGRAM:



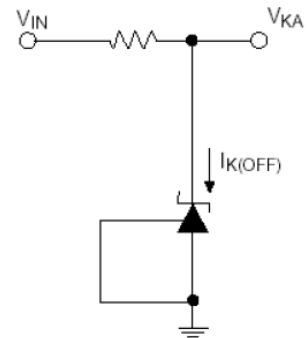
TEST CIRCUITS:



Test Circuit For $V_{KA} = V_{REF}$,
 $C_o = 0.1\mu F$

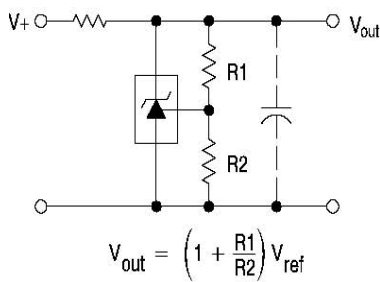


Test Circuit for $V_{KA} \geq V_{REF}$
 $C_o = 0.1\mu F$

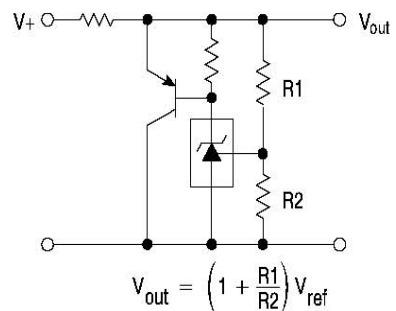


Test Circuit For $I_{K(OFF)}$

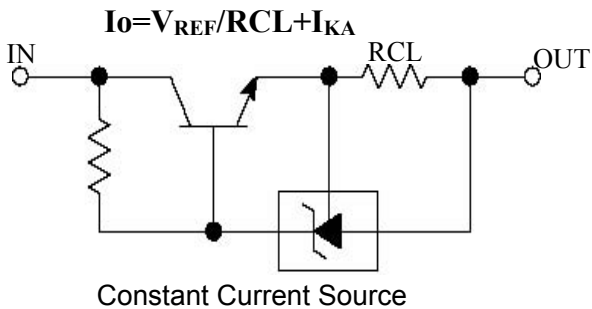
TYPICAL APPLICATIONS:



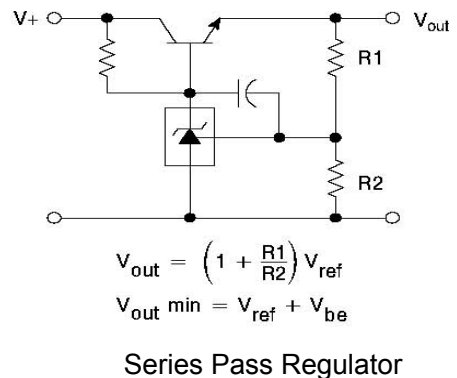
Shutdown Regulator



Higher-current Shunt



Constant Current Source

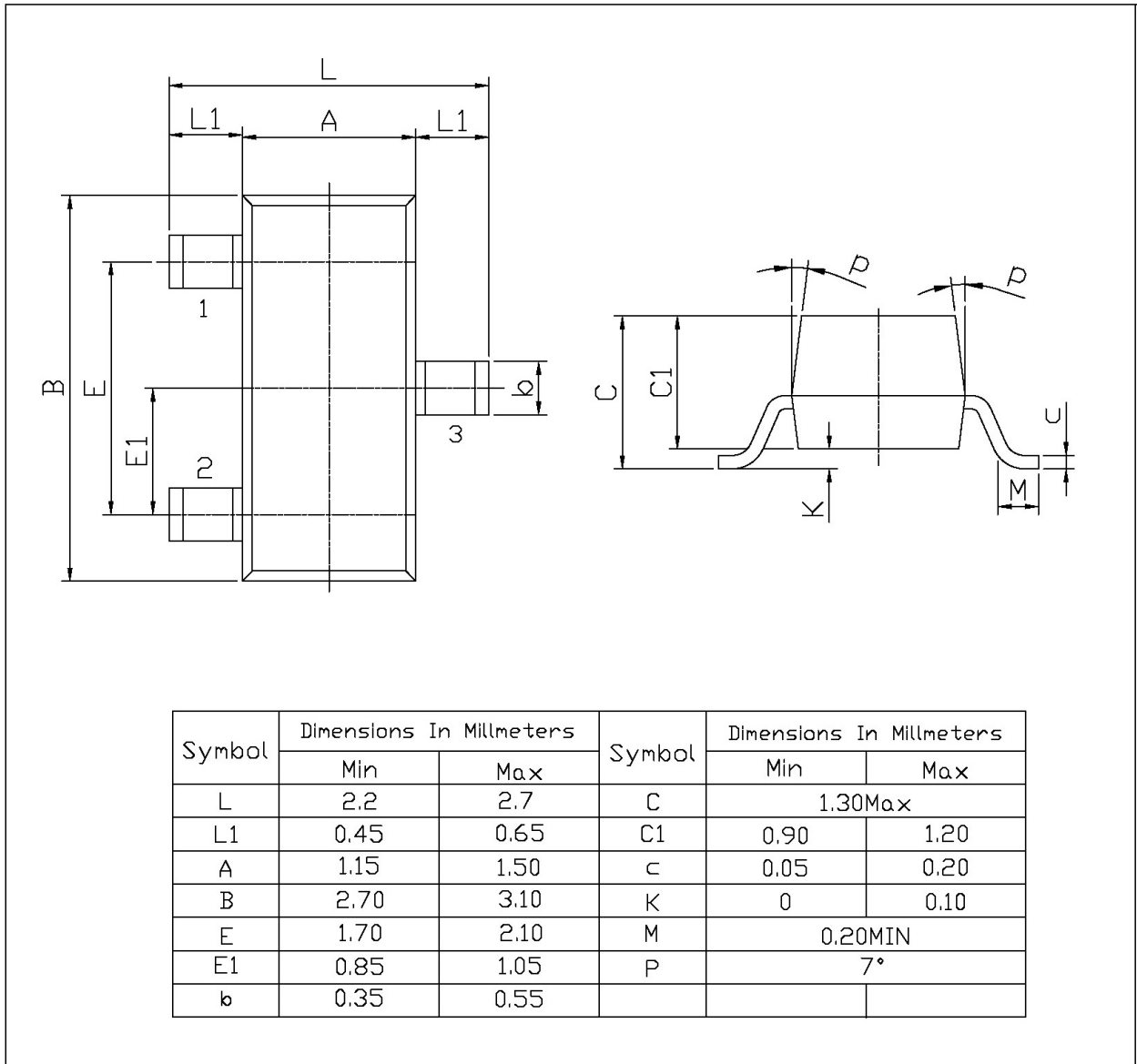


Series Pass Regulator

外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

Q： 为汽车无卤产品标识

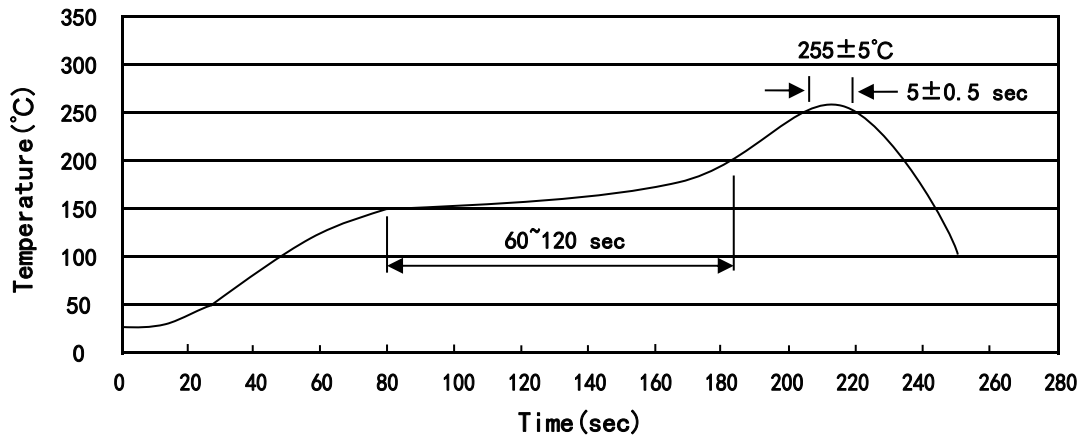
432： 为型号代码

Note:

Q: Automobile halogen-free product Code

432: Product Type

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150~200°C，时间 60~120sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices